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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/420,275	10/18/1999	MIGUEL DAJER	9-3-29	2584

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EXAMINER	
RAMOS FELICIANO, ELISEO	
ART UNIT	PAPER NUMBER
2687	

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/420,275	DAJER ET AL.	
	Examiner	Art Unit	
	Eliseo Ramos-Feliciano	2687	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 September 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-27** are rejected under 35 U.S.C. 103(a) as being unpatentable over Andersson et al. (US Patent Number 6,400,966).

Regarding **claims 1 and 17**, Andersson et al. discloses a base station (e.g. 200) for use in a wireless communication system (Figures 2 and 3) - CDMA (column 11, lines 9-10). The base station's Transmitter 216 includes a plurality of channel unit boards (e.g. BBTX-1, BBTX-2, ... BBTX-N) each including a plurality of channel elements (boxes "Carrier 1 to N1" including "Resource 1 to M6" and "COMB" - Figure 9A) as depicted in Figures 9-12. A given channel unit board (for example, BBTX-1) includes a multiplexer (MUX) which is operative to implement multi-carrier / multi-selector channel pooling by assigning a given one of the channel elements of that board to any one of the multiple carriers (for example, Carrier 1, Carrier 2, ... Carrier N1, etc.) of the system, as depicted in Figures 4B, 7B and 9A. See the abstract, column 5, lines 1-12 & 54-63, column 6, lines 34-51, column 8, line 6 to column 10, line 22.

Figure 9A of Andersson et al. teaches: The plurality of channel unit boards are BBTX-1 to BBTX-N. Each one includes a plurality of channel elements depicted in Figure 9A: boxes "Carrier 1 to N l" including "Resource 1 to M6" and "COMB". The plurality of channel elements provide processing operations for signals assigned to multiple carriers (column 10, line 18) of the

communication system. A given one of the channel elements of one channel unit board (for example, BBTX-1) is assignable to one of a plurality of carriers and antenna sectors of the system.

However, should not be mistaken the fact that Andersson et al. teaches alternative embodiments to his invention. All embodiments could be used interchangeably, all with their own pluses and minus. The embodiment depicted in Figure 9A, and discussed above, is one where separate resources (channel elements) are allocated to each carrier (column 10, lines 14-15). Thus, for this particular embodiment Andersson et al. fails to disclose that the given one of the channel elements of one of the channel unit boards is assignable to each of a plurality of carriers and a plurality of antenna sectors of the system as claimed.

Nevertheless, in an analogous alternative embodiment Andersson et al. teaches that individual resources (channel elements) can be allocated for each sector (antenna sectors) and frequency (carriers) (column 5, lines 50-51). The advantage of this embodiment is to minimize hardware size for a given radio transmission service mix (column 7, lines 30-34).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to assign a given one of the channel elements of one of the channel unit boards to each of a plurality of carriers (frequencies) and a plurality of antenna sectors of the system for the advantage of cost-effective hardware implementation by minimizing hardware size for a given radio transmission service mix as suggested by Andersson et al.'s disclosure.

With respect to **claims 8, 15, and 18**, Andersson et al. discloses a base station (e.g. 200) for use in a wireless communication system (Figures 2 and 3) - CDMA (column 11, lines 9-10). The base station's Transmitter 216 includes a plurality of channel unit boards (e.g. BBTX-1,

BBTX-2, ... BBTX-N) each including a plurality of channel elements (boxes "Carrier 1 to N1" including "Resource 1 to M6" and "COMB" - Figure 9A) as depicted in Figures 9-12. A given channel unit board (for example, BBTX-1) includes a multiplexer (MUX) which is operative to implement multi-carrier / multi-selector channel pooling by assigning a given one of the channel elements of that board to any one of the multiple carriers (for example, Carrier 1, Carrier 2, ... Carrier N1, etc.) of the system, as depicted in Figures 4B, 7B and 9A. See the abstract, column 5, lines 1-12 & 54-63, column 6, lines 34-51, column 8, line 6 to column 10, line 22.

Figure 9A of Andersson et al. teaches: The plurality of channel unit boards are BBTX-1 to BBTX-N. Each one includes a plurality of channel elements depicted in Figure 9A: boxes "Carrier 1 to N l" including "Resource 1 to M6" and "COMB". The plurality of channel elements provide processing operations for signals assigned to multiple carriers (column 10, line 18) of the communication system. A given one of the channel elements of one channel unit board (for example, BBTX-1) is assignable to one of a plurality of carriers and antenna sectors of the system.

However, should not be mistaken the fact that Andersson et al. teaches alternative embodiments to his invention. All embodiments could be used interchangeably, all with their own pluses and minus. The embodiment depicted in Figure 9A, and discussed above, is one where separate resources (channel elements) are allocated to each carrier (column 10, lines 14-15). Thus, for this particular embodiment Andersson et al. fails to disclose that the given one of the channel elements of one of the channel unit boards is assignable to each of a plurality of carriers and a plurality of antenna sectors of the system as claimed.

Nevertheless, in an analogous alternative embodiment Andersson et al. teaches that individual resources (channel elements) can be allocated for each sector (antenna sectors) and frequency (carriers) (column 5, lines 50-51). The advantage of this embodiment is to minimize hardware size for a given radio transmission service mix (column 7, lines 30-34).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to assign a given one of the channel elements of one of the channel unit boards to each of a plurality of carriers (frequencies) and a plurality of antenna sectors of the system for the advantage of cost-effective hardware implementation by minimizing hardware size for a given radio transmission service mix as suggested by Andersson et al.'s disclosure.

In addition, different channel elements of a channel unit board are "controllably assigned" to different carriers of the system; see column 10, lines 13-22 and Figures 4B, 713, 9A, etc.

Regarding **claims 2-5, 7, 9-12, and 14**, Andersson et al. discloses everything claimed as applied above (see rejection of *claims 1 and 8*). In addition, Andersson et al. teaches I and Q signals generated using a particular arrangement, as claimed, as shown in Figures 4B, 7B and 9A (which reads "I, Q to TRXTX part"). As illustrated, the figures show single line buses, but it is apparent that each bus contains separate I and Q signals. See column 9, line 65. It should be noted that the present disclosure uses the same nomenclature and addresses I and Q signals in the same manner that Andersson et al. does. For example, Figures 4-6 of the present disclosure show single line buses (Figure 4 far right "I/Q buses from other channel cards"; Figure 5 bottom left "Carrier N I/Q" and "Upstream I/Q bus"; Figure 6A "N Carrier/sector I/Q Bus"; etcetera) wherein each bus contains separate I and Q signals.

The multiplexer (MUX) is operative to connect a given one of the channel elements to an I and Q signal bus; Figure 9A. The I and Q signals from different channel unit boards are combined using a "Combiner"; Figure 11.

N channel elements can be assigned to N carriers in N sectors; column 10, lines 13-22 and the Figures. The disclosed wireless communication system is a CDMA system operating in either IS-95-A, B or C, with or without OTD, MC CDMA-2000 (WCDMA), or UMTS; see column 1, line 58 to column 2, line 25, and column 11, lines 7-12. [For clarification purposes, W-CDMA (column 11, line 8) is officially known as UMTS and is the European equivalent of MC CDMA-2000. CDMA (column 11, line 10) is the claimed IS-95A.]

As to the limitation "wherein each of at least a subset of the channel unit boards includes a total of N channel elements, and each of the channel elements may be assigned to one of up to N carriers of the system", Andersson et al. meets that claim language as follows: each of at least a subset (at least one; e.g. BBTX-1) of the channel unit boards includes a total of N channel elements (labeled "Carrier 1 to N1", each one containing "Resource 1 to M6" in combination with "COMB"), and each of the channel elements may be assigned to one of up to N carriers (e.g. only one; Carrier 1) of the system.

Regarding **claims 6 and 13**, Andersson et al. discloses everything claimed as applied above (see claims 1 and 8). In addition, Andersson et al.'s invention includes a control computer operative to generate one or more control signals for controlling assignment of the channel elements of the channel unit boards to the plurality of carriers of the system; see the "Channel Selection" input bus in Figure 12.

With respect to **claim 16**, Andersson et al. discloses a base station (e.g. 200) for use in a wireless communication system (Figures 2 and 3) - CDMA (column 11, lines 9-10). The base station's Transmitter 216 includes a plurality of channel unit boards (e.g. BBTX-1, BBTX-2, ... BBTX-N) each including a plurality of channel elements (boxes "Carrier 1 to N1" including "Resource 1 to M6" and "COMB" - Figure 9A) as depicted in Figures 9-12. A given channel unit board (for example, BBTX-1) includes a multiplexer (MUX) which is operative to implement multi-carrier / multi-selector channel pooling by assigning a given one of the channel elements of that board to any one of the multiple carriers (for example, Carrier 1, Carrier 2, ... Carrier N1, etc.) of the system, as depicted in Figures 4B, 7B and 9A. See the abstract, column 5, lines 1-12 & 54-63, column 6, lines 34-51, column 8, line 6 to column 10, line 22.

Figure 9A of Andersson et al. teaches: The plurality of channel unit boards are BBTX-1 to BBTX-N. Each one includes a plurality of channel elements depicted in Figure 9A: boxes "Carrier 1 to N l" including "Resource 1 to M6" and "COMB". The plurality of channel elements provide processing operations for signals assigned to multiple carriers (column 10, line 18) of the communication system. A given one of the channel elements of one channel unit board (for example, BBTX-1) is assignable to one of a plurality of carriers and antenna sectors of the system.

However, should not be mistaken the fact that Andersson et al. teaches alternative embodiments to his invention. All embodiments could be used interchangeably, all with their own pluses and minus. The embodiment depicted in Figure 9A, and discussed above, is one where separate resources (channel elements) are allocated to each carrier (column 10, lines 14-15). Thus, for this particular embodiment Andersson et al. fails to disclose that the given one of

the channel elements of one of the channel unit boards is assignable to each of a plurality of carriers and a plurality of antenna sectors of the system as claimed.

Nevertheless, in an analogous alternative embodiment Andersson et al. teaches that individual resources (channel elements) can be allocated for each sector (antenna sectors) and frequency (carriers) (column 5, lines 50-51). The advantage of this embodiment is to minimize hardware size for a given radio transmission service mix (column 7, lines 30-34).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to assign a given one of the channel elements of one of the channel unit boards to each of a plurality of carriers (frequencies) and a plurality of antenna sectors of the system for the advantage of cost-effective hardware implementation by minimizing hardware size for a given radio transmission service mix as suggested by Andersson et al.'s disclosure.

In addition, Andersson et al.'s invention includes a control computer operative to generate one or more control signals for controlling assignment of the channel elements of the channel unit boards to the plurality of carriers of the system; see the "Channel Selection" input bus in Figure 12.

As to **claims 19-23**, they are an obvious variation form of claims 1-18. Therefore, they are rejected for the same reasons shown above. For clarification: the above explained multiplexer (MUX) reads as the claimed "signal combiner element" and is "controllable" by the explained "control computer". Figure 9A exhibits a set of BBTXs each including one MUX. These MUXs in combination read as the claimed "set of controllable signal combiners". For example, the circuitry "TRX-RF" that contains the adder (E) depicted in Figure 12 reads as the claimed "multi-carrier combiner".

It should be noted that Figures 9A and 12 are related as depicted in Figure 3. Figure 9A is component 216 of which output is input to component 202 depicted as Figure 12. The combination of all multiplexers (MUX) of each BBTX (1 to N) reads as the claimed 66 set of controllable signal combiners". The circuitry "TRX-RF", that contains the adder (E), depicted in Figure 12 reads as the claimed "multi-carrier combiner". Thus, the multi-carrier combiner includes a plurality of inputs, shown in Figure 12 as Frequency 1 and 2 each comprising I and Q, and an additional input, shown in Figure 12 as "Channel Selection" input bus.

Claims 24-27 define a receiver sub-unit of the claimed base station, while claims 19-23 define a transmitter sub-unit of the claimed base station. Claims 24-27 are at least obvious in view of claims 19-23 because every transmission needs and implies a reception. Nevertheless, Andersson et al. discloses both the transmitter (Figures 9-12) and the receiver (Figures 4-8) sub-units of the base station (Figure 3). The same explanation found above is applied herein. The demultiplexer (DEMUR) shown in Figures 4-8 reads as the claimed "controllable selector".

Response to Arguments

3. Applicant's arguments filed September 20, 2004 have been fully considered but they are not persuasive.

Applicant argues that the newly added limitations are not met by Andersson et al. based on previous rejection interpretation (see page 9, fifth full paragraph of the response).

In response to applicant's argument, these newly added limitations have now been treated on the merits and addressed in the rejection above. Should not be mistaken the fact that Andersson et al. teaches alternative embodiments to his invention. All embodiments could be used interchangeably, all with their own pluses and minus. The embodiment depicted in Figure

9A, as previously discussed, is one where separate resources (channel elements) are allocated to each carrier (column 10, lines 14-15). Nevertheless, in an analogous alternative embodiment Andersson et al. teaches that individual resources (channel elements) can be allocated for each sector (antenna sectors) and frequency (carriers) (column 5, lines 50-51). The advantage of this embodiment is to minimize hardware size for a given radio transmission service mix (column 7, lines 30-34). The claimed limitations are fully met by the applied prior art explained above.

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquiry concerning this communication from the examiner should be directed to Eliseo Ramos-Feliciano whose telephone number is 571-272-7925. The examiner can normally be reached from 8:00 a.m. to 5:30 p.m. on 5-4/9 1st Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid, can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ERF/erf
May 25, 2005

5/25/05
ELISEO RAMOS-FELICIANO
PATENT EXAMINER